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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

**Michael John Dixon et al.**

**June 12, 2003**

Serial No.: **09/915,133**

Group Art: **2832**

Filed: **July 25, 2001**

Examiner: **Donovan, Lincoln D.**

**Title: MAGNETIC ROLLER AND METHODS OF PRODUCING SAME**

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**BRIEF ON APPEAL**

**Before the Board of Patent Appeals and Interferences**

In response to the Final Rejection mailed April 2, 2003, please enter this Brief on Appeal.

**REAL PARTY IN INTEREST**

The real party in interest is Lexmark International, Inc., a corporation of the state of Delaware, which owns the entire interest in this patent application and the underlying invention.

**RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

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## **STATUS OF CLAIMS**

Claims 1 through 10 are the subject of this appeal as detailed below.

Claims 1 through 10 were pending at the time of this appeal. Original claims 11 through 15 were method claims and have been cancelled without prejudice or disclaimer after a restriction requirement. No other claims were presented.

## **STATUS OF AMENDMENTS**

A response after Final Rejection was made which was directed primarily to argument distinguishing the Kobayashi reference, which was newly cited in the Final Rejection. An Advisory Action was received in response, which simply stated; "The prior art discloses the invention as claimed." The Advisory Action indicates entry for purposes of appeal.

## **SUMMARY OF THE INVENTION**

This application is to magnetic rollers foamed internally (p. 3, l. 16-17). Rollers in accordance with the invention exhibit magnetic and mechanical properties equal to or better than non-foamed magnetic rollers (p. 3, l. 10-12). The roller of this invention does not have bubbles near the outside (p. 8, l. 1-3). To the extent the bubbles exist, weight is reduced, with corresponding savings in cost of materials and expense of handling and shipment (p. 8, l. 3-5).

The application describes in detail the making of the rollers by use of a blowing agent during molding. However, claims to such manufacture were restricted and are not a subject of this appeal.

The roller is a combination of resin and magnetic material (p.5, l. 12-15). A preferred formula contains, by weight, 88% strontium ferrite and 11% Nylon 6 (p.7, l. 10-14).

An exemplary embodiment contains at least 5% less by weight magnetic filler and resin binder while exhibiting equivalent magnetic performance (p. 6, l. 21-25). Another embodiment contains at least 5% less by weight magnetic filler and resin binder while exhibiting equivalent mechanical strength. (p. 6, l. 25 - p. 7, l. 9)

### **ISSUES ON APPEAL**

The single issue on appeal is as follows:

ISSUE: Whether claims 1 through 10 are obvious over Ochiai et al [US 5,565,966] in view of Kobayashi [US 5,666,620]. (Rejection of claims 5 and 6 on the foregoing rejection as applied to claims 1-4 and further in view of the Ochiai reference is removed as a separate issue because claims 5 and 6 are dependent claims under claim 1 and are grouped below to stand or fall with claim 1. Similarly, rejection of claim 7 on the foregoing rejection as applied to claims 1 and 2 and further in view of the Ochiai reference and Lee et al. [US 5,019,796] is removed as a separate issue because claim 7 is dependent under claims 1 and is grouped below to stand or fall with claim 1.)

### **GROUPING OF CLAIMS**

With respect to the ISSUE claims 1 through 8 are grouped stand and fall together for purposes of this appeal. Claims 9 and 10 each stand separate from all other claims because each has additional limitation of amounts providing a separate basis of inventive basis over the prior art.

## ARGUMENT

Ochiai is cited to show a magnetic roller. Kobayashi is cited to show a foamed roller. A different reference was cited for that purpose in the prior rejection. The only elaboration on the content of Kobayashi in the rejection is the following: "Kobayashi disclose a roller [20] using a foamed resin coating."

It is hereby respectfully pointed out that the Kobayashi reference is deficient with respect to the claims for two separate reasons, each on which is decisive to establish patentability of the claims.

The first basis distinguishing Kobayashi is that the foam of Kobayashi is not restricted to its interior. Claim 1, the only independent claim at issue, expressly requires "no bubbles of said foam at the outside of said roller." Kobayashi clearly shows in Fig. 8 bubbles extending to the surface of the roller. Kobayashi as a whole in no way suggests that its foam somehow has a discernable pattern of bubbles. No description of the distribution of the foam bubbles is given in Kobayashi other than the term "closed-cell foam" (used several times) and Fig. 8. Fig. 8 of Kobayashi shows bubbles throughout the foam with several contiguous to the outer surface.

The second basis distinguishing Kobayashi is that the foam of Kobayashi is in no respect magnetic. A magnetic material is clearly required by the claims. The foam of Kobayashi is to provide a yielding surface while being closed to prevent toner from entering the roller. Thus, col. 2., l. 23-27 of Kobayashi read: "When a toner supply roller consists of closed-cell foam rubber free from internal toner clogging, the toner coating/removal performance with respect to the sleeve, and triboelectric charging performance of the toner can be satisfactorily maintained . . . ."

The Final Rejection references roller 20 of Kobayashi. Although element 20 is a magnetic roller (see col. 15, l. 41-45), that is not foam. The foam is formed around roller 20 (Col. 15, l. 44-45 read: "closed-cell foam is formed on the surface of the magnetic roller.") This is shown as the element having reference numeral 26 in Fig. 9, although the reference numeral 26 is not in the discussion of Fig. 9 and is used to identify the entire supply roller in the discussion of Fig. 5 and is applied to the entire roller in Fig. 8.

Since the Kobayashi foam has no particular magnetic function or characteristic, no suggestion can be found to combine its teaching with the teaching of the solid magnetic roller of Ochiai. The Final Rejection is silent as to any suggestion or motivation for such a combination.

In fact, Kobayashi teaches away from the instant invention since it shows a solid magnetic core and foam with bubbles only outside the core.

The other references cited are applied to elements of dependent claims and therefore could not overcome the deficiencies of the rejection of claim 1 discussed in the foregoing.

Additionally, with regard to claims 9 and 10, Kobayashi is not to foamed magnetic composition and so could not suggest a 5 weight percent reduction of the material because of being foamed. Claim 9 is specific to a reduction of at least 5 weight percent while exhibiting equivalent magnetic performance. Claim 10 is specific to a reduction of at least 5 weight percent while exhibiting equivalent mechanical strength.

The Final Rejection cited no added reference and merely states: "Regarding claims 9-10, the specific ratio of filler and resin would have been an obvious design consideration based on the specific operating environment." This does not address

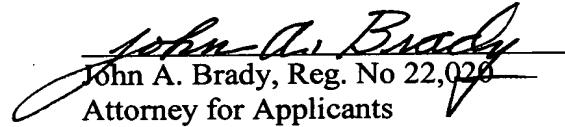
weight reduction from foaming at all. As discussed in the foregoing, Ochiai is not about a foamed roller and Kobayashi is not about a magnetic foam. Accordingly, each of claims 9 and 10 appear broadly novel and therefore patentable.

**PRAYER FOR RELIEF**

Accordingly, a decision allowing claim 1-9, all of the pending claims, is respectfully requested.

Respectfully submitted,

**Michael John Dixon et al.**

  
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**APPENDIX**  
**Claims on Appeal**

1. A magnet roller comprising a foamed mixture of resin and magnetic material having no bubbles of said foam at the outside of said roller.
2. The magnetic roller of claim 1, wherein the foamed resin magnetic material comprises from about 80 to about 95 weight percent of magnetic filler and from about 5 to about 20 weight percent of resin binder.
3. The magnetic roller of claim 2, wherein the magnetic filler comprises a ferrite filler.
4. The magnetic roller of claim 2, wherein the magnetic filler comprises barium ferrite, strontium ferrite, a rare earth-cobalt alloy, a rare earth iron-boron alloy, or mixtures thereof.
5. The magnetic roller of claim 2, wherein the resin binder comprises nylon.
6. The magnetic roller of claim 2, wherein the resin binder comprises nylon-6, nylon-12, nylon-6/6, nylon 6/10, nylon 6/12, polyvinyl chloride or polypropylene.
7. The magnetic roller of claim 4, where the ferrite filler comprises strontium ferrite filler
8. The magnetic roller of claim 2, wherein the foamed resin magnetic material further comprises glass fibers, carbon filler, or mixtures thereof.
9. The magnetic roller of claim 2, wherein the roller contains at least 5 weight percent less of the magnetic filler and resin binder as compared with the same sized roller foamed from non-foamed magnetic filler and resin bidder and exhibits substantially equivalent magnetic performance as such a same sized roller.

10. The magnetic roller of claim 2, wherein the roller contains at least 5 weight percent less of the magnetic filler and resin binder as compared with the same sized roller foamed from non-foamed magnetic filler and resin bidder and exhibits substantially equivalent mechanical strength as such a same sized roller.